

Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Currently amended) A method ~~for producing~~ to produce a hard mask ~~[[in]]~~ on a capacitor device, the method comprising ~~the steps of:~~

applying a photosensitive sol-gel layer to said capacitor device;

applying a pattern to said sol-gel layer to form a patterned sol-gel layer; and

applying a nitrogen thermal decomposition treatment to said patterned sol-gel layer to convert the patterned sol-gel layer to a hard mask layer comprising a metal nitride.

2. (Original) A method according to claim 1, further comprising the step of etching said hard mask layer according to said pattern to provide a pattern for the etching of one or more layers in said capacitor device.

3. (Original) A method according to claim 1, wherein the step of applying said photosensitive sol-gel layer comprises applying a titanium organic gel layer.

4. (Original) A method according to claim 1, wherein the step of applying said photosensitive sol-gel layer comprises applying a titanium-aluminium organic gel layer.

5. (Original) A method according to claim 1, wherein the step of applying said photosensitive sol-gel layer comprises applying a mixture of one or more titanium alkoxides with ethyl acetoactate (EacAc).

6. (Original) A method according to claim 5, wherein the step of applying said photosensitive sol-gel layer comprises applying a mixture of one or more of $(\text{TiOEt})_4$ or $\text{Ti}(\text{OEt})_4$ plus $\text{Al}(\text{OBu})_3$ with ethyl acetoactate (EacAc).

7. (Original) A method according to claim 1, wherein the step of applying a pattern comprises applying said pattern using a photolithographic process.

8-11. (Canceled).

12. (Previously presented) A method according to claim 1, wherein the step of applying a thermal decomposition treatment comprises applying a nitrogen thermal decomposition treatment to convert said patterned layer to a TiN hard mask material.

13. (Previously presented) A method according to claim 1, wherein the step of applying a thermal decomposition treatment

comprises applying a nitrogen thermal decomposition treatment to convert said patterned layer to an Al-Ti-N hard mask material.

14. (Original) A method according to claim 1, wherein the step of applying said photosensitive organic gel layer comprises applying said layer using a spin coating technique.

15. (Original) A ferroelectric capacitor device etched according to the hard mask formed according to the method of claim 1.

16. (Original) A FeRAM device etched according to the hard mask formed according to the method of claim 1.

17. (Original) A hard mask formed according to the method of claim 1.

18. (New) A method according to claim 2, wherein the photosensitive sol-gel layer is applied to one of: a bottom electrode of the capacitor device, and a top electrode of the capacitor device.

19. (New) A method as claimed in claim 18, wherein the etching is a one-step tech from the top electrode to the bottom electrode.